

## REMARKS

Favorable reconsideration and withdrawal of the objections and rejection set forth in the above-mentioned Official Action in view of the foregoing amendments and the following remarks are respectfully requested.

### Drawings

The drawing are objected to as failing to comply with 37 C.F.R. § 1.84(p)(4) because reference character “S4” has been used to designate both a power supply of the toner charger and a power supply of the developer member.

The drawings are also objected to as failing to comply with 37 C.F.R. § 1.84(p)(5) because they do not include reference character “S2” mentioned in the description.

In response, a Submission of Corrected Sheets of the Drawings is being filed concurrently herewith in which reference character “S4” is being changed to --S2-- in Figures 1 and 12. No new matter has been added. It is respectfully submitted that the objections to the drawings have been overcome.

### Specification

The specification is objected to because of the minor informalities noted by the Examiner. The specification has been amended to attend to any informalities, including those kindly identified by the Examiner. It is respectfully submitted that no new matter has been added.

### Claims Status

Claims 1 through 19 are pending in the application. Claims 1, 3, and 7 have been amended to even more succinctly define the invention and/or to improve their form. Claims 8 through 19 have been added as a result of amendments to the original claims to

avoid impermissible multiple dependent claims. It is respectfully submitted that no new matter has been added. Claim 1 is the only independent claim pending in the application.

#### Claim Objection

Claims 3 and 7 are objected to because of minor informalities noted by the Examiner. In response, Claims 3 and 7 have been amended to overcome the objection. It is respectfully submitted that the objection has been overcome.

#### Art Rejection

Claims 1 through 7 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application Publication No. 2002/0057925 (Watanabe, et al.) in view of U.S. Patent No. 6,026,259 (Yamaki, et al.) and U.S. Patent Application Publication No. 2002/0127025 (Sasai). The rationale underlying the foregoing rejection is set forth in the Official Action.

#### Response to Art Rejection

The rejection is respectfully traversed.

Amended Claim 1 calls for an image forming apparatus that includes an image bearing member to be moved rotationally, charging means for electrically charging the image bearing member and toner remaining on the image bearing member, electrostatic latent image forming means for forming an electrostatic latent image on the image bearing member charged by the charging means, developing means for visualizing the electrostatic latent image while recovering the toner remaining on the image bearing member, toner charging means which is disposed upstream from the charging means in a rotational direction of the image bearing member and it to be supplied with a voltage of a polarity identical to that of a voltage to be applied to the charging means to electrically charge the

toner remaining on the image bearing member, recording means for data on an operation history of the image forming apparatus, and voltage switching means for switching a first voltage applied to the toner charging means to a second voltage, higher than the first voltage, as an absolute value, applied to the toner charging means on the basis of the data.

The present invention is directed to image forming in a so-called cleanerless image forming apparatus in which transfer residual toner is (1) electrically charged by applying to a toner charging means a voltage of a polarity identical to that of a voltage to be applied to a charging means and (2) removed by a developing means. Accordingly, a charging bias and the transfer residual toner are electrically repulsed from each other when it passes through the charging means to alleviate deposition of the transfer residual toner on the charging means.

However, an electric resistance of a toner charging means varies depending on an operation condition of an image forming apparatus. As a result, when a voltage identical to a voltage applied to the charging means is applied to the toner charging means, an amount of electric charge of transfer residual toner becomes insufficient. As a result, a problem arises that transfer residual toner is liable to be deposited on the charging means.

In order to solve this problem, the present invention is characterized by a voltage switching means for switching a first voltage applied to the toner charging means to a second voltage, which is higher in absolute value than the first voltage, applied to the toner charging means on the basis of the data regarding the operation history of the image forming apparatus.

As a result of the use of the claimed image forming apparatus, even when the resistance of the toner charging means is lowered, it is possible to prevent insufficient electrical charging of the transfer residual toner by the toner charging means.

Watanabe, et al. describes a toner-amount-control charging means 8 (Figure 1) for charging transfer residual toner by applying thereto a voltage of a polarity identical to that of a voltage applied to a charging means. However, Watanabe, et al. fails to either disclose or suggest that the voltage applied to the toner charging means 8 is changed. Accordingly, Watanabe, et al. fails to either disclose or suggest a claimed voltage switching means.

Yamaki, et al. discloses an image forming apparatus, wherein a voltage applied to a charge removal sheet for removing a potential of a photosensitive drum is changed in response to a number of sheets printed. However, the charge removal sheet is not a toner charging means for charging residual toner by applying thereto a voltage of a polarity identical to that of a voltage applied to charging means. Accordingly, Yamaki, et al. also does not either disclose or suggest the claimed voltage switching means.

Sasai discloses an image forming apparatus, wherein a voltage of a polarity opposite to that of a voltage applied to charging means is applied to a memory removal brush 26 for removing an image history of transfer residual toner from a photosensitive drum. However, the memory removal brush 26 is not a toner charging means for charging the residual toner by applying thereto a voltage of a polarity identical to that of a voltage applied to charging means. Accordingly, Sasai also does not either disclose or suggest the claimed voltage switching means.

It is also respectfully submitted that the combination rejection is not well founded. The Examiner has provided a *rationalization* for combining the teachings of the cited art

based on the benefits of doing so. A combination rejection is proper only when there is some suggestion or motivation in the cited art *per se* to cause one having ordinary skill in the art to combine the teachings of the cited art. There is nothing in the cited art which supports the position that it can be combined in the manner suggested. Even if the art could be so combined, the mere fact that the art can be combined is not sufficient if there is no suggestions in the art that such a combination is desirable. For example, see ACS Hospital Systems, Inc. v. Montefiore Hospital, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984).

In view of the foregoing, it is respectfully submitted that amended Claim 1 is allowable over the cited art whether taken individually or in combination.

#### Dependent Claims

Claims 2 through 19 depend either directly or indirectly from Claim 1 and are allowable by virtue of their dependency and in their own right for further defining Applicant's invention. Individual consideration of the dependent claims is respectfully requested.

#### Closing Comments

It is respectfully submitted that the pending claims are allowable over the art of record and that the application is in condition for allowance. Favorable reconsideration and early passage to issue of the present application are earnestly solicited.

Applicant's undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our New York office at the address shown below.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read 'Wannisky', is written over a horizontal line.

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